Amendment to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for determining packet processing data, comprising the steps of:

receiving a packet;

forming a plurality of subtuples for the packet from flow properties associated with the packet;

applying one or more of the subtuples as respective inputs to respective one or more of lookups;

returning a nickname as an output from at least one of the lookups, wherein the nickname has a lower bit count than the associated subtuple; and

applying the nickname as an input to at least one of the lookups;

and

returning packet processing data as an output from at least one of the lookups.

Claims 2-3 (cancel)

Claim 4 (original): The method according to claim 1, wherein fewer than all of the plurality of subtuples are applied as the respective inputs to the respective ones of lookups.

Claim 5 (currently amended): A method for determining packet processing data, comprising the steps of:

receiving a packet;

forming a tuple for the packet including a plurality of flow properties associated with the packet; and

applying one or more of portions of the tuple to respective consecutive one or more of lookups until packet processing data are returned, wherein said processing data comprises a recursion indicator that prevents the application of each of the plurality of flow properties to a respective lookup.

Claims 6-7 (cancel)

Claim 8 (original): A method for determining packet processing data, comprising the steps of:

inputting a first lookup key including a first portion of a tuple;

determining a nickname in response to the first lookup key, the nickname having a lower bit count than the first lookup key;

outputting the nickname;

inputting a second lookup key including a second portion of the tuple and the nickname; and

outputting packet processing data in response to the second lookup key.

Claim 9 (original): The method according to claim 8, wherein the ones of outputting steps further include outputting respective ones of recursion indicators sufficient to indicate the need for inputting an additional lookup key.

Claim 10 (original): The method according to claim 8, wherein the ones of outputting steps further include outputting ones of

indicators, respectively, sufficient to indicate the absence and presence, respectively, of packet processing data.

Claim 11 (original): The method according to claim 8, wherein the ones Of outputting steps further include outputting ones of indicators, respectively, sufficient to indicate the presence and absence, respectively, of a nickname.

Claim 12 (currently amended): A method for determining packet processing data, comprising the steps of:

receiving a packet;

forming a tuple for the packet including a first subtuple identifying a first flow property associated with the packet and a second subtuple identifying a second flow property associated with the packet;

applying the first subtuple to a database element; and

returning data from the database element in response to the first subtuple, the data comprising a recursion indicator adapted to preempt application of the second subtuple to the database element.

Claim 13 (original): The method according to claim 12, wherein the returned data includes packet processing data.

Claim 14 (currently amended): A switching interface for a data communication switch, comprising:

an access controller having a port for receiving a packet; and

a switching engine coupled to the access controller, the switching engine adapted to:

receive ~~for receiving~~ the packet from the access controller,

determine ~~for determining~~ a tuple for the packet including a plurality of flow properties,

transmit ~~for transmitting~~ ones of portions of the tuple to a database element, and

receive ~~for receiving~~ a nickname having a lower bit count than the associated subtuple or packet processing data from the database element in response to one of the portions.

Amdt.

Claim 15 (original): The switching interface according to claim 14, wherein the flow properties include a destination address.

Claim 16 (original): The switching interface according to claim 15, wherein the flow properties include a source address, a port, and a quality of service.

Claim 17 (currently amended): The switching interface according to claim 14, wherein ~~Wherein~~ the received packet processing data include a plurality of packet flow information.

Claim 18 (currently amended): A switching interface for a data communication switch, comprising:

means for receiving a packet;

means for forming a plurality of subtuples for the packet from flow properties associated with the packet;

means for applying one or more of the subtuples as respective inputs to respective one or more of lookups;

means for returning a nickname as an output from at least one of the lookups, wherein the nickname has a lower bit count than at least one of the subtuples;

means for applying the nickname as an input to at least one of the lookups; and

means for returning packet processing data as an output from at least one of the lookups.

Claims 19-20 (cancel)

Claim 21 (original): The switching interface according to claim 18, wherein fewer than all of the plurality of subtuples are applied as the respective inputs to the respective ones of lookups.

Claim 22 (currently amended): A switching interface for a data communication switch, comprising:

means for receiving a packet;

means for forming a tuple for the packet including a plurality of flow properties associated with the packet; and

first means for applying one or more of portions of the tuple in respective consecutive one or more of lookups until packet processing data are returned, wherein said processing data comprises a recursion indicator that:

indicates the return of the packet processing data, and

causes the first means to terminate the application of the plurality of flow properties to a respective lookup prior to the application of each of the plurality of flow properties.

Claims 23-24 (cancel)

Claim 25 (original): A switching interface for a data communication switch, comprising:

means for inputting a first lookup key including a first portion of a tuple;

means for determining a nickname in response to the first lookup key, the nickname having a lower bit count than the first lookup key;

means for outputting the nickname;

means for inputting a second lookup key including a second portion of the tuple and the nickname; and

means for outputting packet processing data in response to the second lookup key.

Claim 26 (original): The switching interface according to claim 25, further comprising means for outputting respective ones of recursion indicators sufficient to indicate a need for inputting an additional lookup key.

Claim 27 (original): The switching interface according to claim 25, further comprising means for outputting ones of indicators, respectively, sufficient to indicate the absence and presence, respectively, of packet processing data.

Claim 28 (original): The switching interface according to claim 25, further comprising means for outputting ones of indicators, respectively, sufficient to indicate the presence and absence, respectively, of a nickname.

Claim 29 (currently amended): A switching interface for a data communication switch, comprising:

means for receiving a packet;

means for forming a tuple for the packet including a first subtuple identifying a first flow property associated with the packet and a second subtuple identifying a second flow property associated with the packet;

means for applying the first subtuple to a database ~~element~~; and

means for returning data from the database ~~element~~ in response to the first subtuple, the data comprising an indicator adapted to indicate the presence, in the data, of:

a nickname to be applied as an input into the database with the second subtuple, and

packet processing data to preempt application of the second subtuple to the database ~~element~~.

Claim 30 (currently amended): The switching interface according to claim 29, wherein the returned data ~~further~~ includes the packet processing data to preempt application of the second subtuple to the database.

Claim 31 (new): The switching interface according to claim 29, wherein the returned data includes the nickname to be applied as an input into the database with the second subtuple.